University of Eswatini

Department of Computer Science

Examination(Supplementary)

2018/2019

FIRST SEMESTER

Title of Paper: INTRODUCTION TO COMPUTER SCIENCE

Course Code: CSC111

Time Allowed: Three (3) Hours

Instructions: Answer any four **Questions**.

Don't write anything on the Examination Question paper.

You are not allowed **to open this paper until you have been told to do so by the invigilator.**

QUESTION ONE

a) Write a short note on genesis of FOSS
   5marks

b) Explain five reasons why individuals/organizations choose FOSS   10marks

c) List five commonly used FOSS tools in the universities for programming courses
                                                                            10marks

QUESTION TWO

a) Write an R funcion called X_matrix that takes one argument, called n, that you should assume is a positive integer, and that returns an n by n matrix of numbers, which are zero except that they are one on the diagonal from the top left to bottom right and on the diagonal from the top right to the bottom left.   9marks

b) List three differences between a physical and an intellectual property   6marks

c) List 10 safety rules for using the Internet.   10marks

QUESTION THREE

a) Differentiate between wired and wireless data communication media with the support of three examples for each   10marks

b) Write R program to solve the linear equations of four dimension below by solving for x,y, z and w. You are expected to write out an equation to represent a system of linear equation first and then write the equation in the matrix form expected to support the implementation of your code. After solving for the value of x,y,z and w find the transpose of A and the determinant of A.

$$
\begin{aligned}
4w &+ 1x + 2y + 3z = 6 \\
3w &- 6x + 5y + 4z = 1 \\
9w &+ 7x - 7y + 8z = 4 \\
1w &+ 1x + 1y - 1z = 1 \\
3w &+ 4x + 3y + 2z = 5
\end{aligned}
$$

                                                                            15Marks

QUESTION FOUR

a) List and explain three ways a computer belonging to someone else can be penetrated by a malicious person?   7marks

b) Write short note on the following

   i.   LAN   2marks

   ii.   MAN   2marks

   iii.   WAN   2marks

c) Write R program to arrange the numbers below in ascending and descending order using a sort function with a vector 33,11,6,15,12,8,2,1,7,9   12marks

QUESTION FIVE

a) Write briefly on the three key principles of ethics   5marks

b) Write out the full meaning of the following with a statement on them

    i.   FTP   2marks

    ii.   CPU   2marks

    iii.   SMTP   2marks

    iv.   HTTP   2marks

    v.   TCP/IP   2marks

    vi.   VOIP   2marks

c) Convert 120TB to MB   4marks

d) Convert AB4 in hexadecimal to binary using binary coded hexa   4marks

QUESTION SIX

a) Write short notes on four different types of binary coding schemes   4marks

b) List and explain data transmission mode and its types   6marks

c) Differentiate between the following

    i.   Analog and digital computer   4marks

    ii.   Assembler and Compiler   4marks

d) Explain the following computer network topology with the support of a diagram

    i.   Star network

    ii.   Ring network

    iii.   Mesh network

                                                    7marks